UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,644	07/02/2007	Petra Perner	DE0401831	2132

30008 7590 05/24/2010

GUDRUN E. HUCKETT DRAUDT
SCHUBERTSTR. 15A
WUPPERTAL, 42289
GERMANY

EXAMINER	
COUGHLAN, PETER D	

ART UNIT	PAPER NUMBER
2129	

MAIL DATE	DELIVERY MODE
05/24/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/599,644	PERNER, PETRA	
	Examiner	Art Unit	
	PETER COUGHLAN	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-29 and 31-43* is/are rejected.

7)☒ Claim(s) *30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *A, B*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

1. The examiner acknowledges the applicant's preliminary amendment filed July 2, 2007 wherein the applicant cancelled claims 1-19 and introduced claims 20-43 which are pending in this application and are subject to examination below.

Objections

2. The application is missing the abstract. See §1.72.

§ 1.72 Title and abstract.

(a) The title of the invention may not exceed 500 characters in length and must be as short and specific as possible. Characters that cannot be captured and recorded in the Office's automated information systems may not be reflected in the Office's records in such systems or in documents created by the Office. Unless the title is supplied in an application data sheet (§ 1.76), the title of the invention should appear as a heading on the first page of the specification.

(b) A brief abstract of the technical disclosure in the specification must commence on a separate sheet, preferably following the claims, under the heading "Abstract" or "Abstract of the Disclosure." The sheet or sheets presenting the abstract may not include other parts of the application or other material. The abstract in an application filed under 35 U.S.C. 111 may not exceed 150 words in length. The purpose of the abstract is to enable the United States Patent and Trademark

Office and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure.

Claim Rejection- 35 USC 112, 2nd paragraph

3. Claims 20-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 20-30 recites the limitation "the translation" in line 9 of claim 20. There is insufficient antecedent basis for this limitation in the claim. Claims 32 and 43 recite the limitation "the translation" in line 1 of claim 32. There is insufficient antecedent basis for this limitation in the claim. Furthermore, claims 20-43 appear to be drafted in an unusual manner since these claims represent method claims but fail to be drafted in process/step format. Conventionally, method or process claims are usually drafted by reciting active steps that are involved in the process. The instant claims do not appear to be drafted in this type of format and it is considered difficult to ascertain the metes and bounds of these claims.

Independent claim 31 and dependent claims 32-46 are considered prolix claims as identified in MPEP 2173.05(m). Specifically, claim 31 appears to be drafted in an unusual manner since these claims represent method claims but fail to be drafted in process/step format. Conventionally, method or process claims are usually drafted by reciting active steps that are involved in the process. The instant claims do not appear

to be drafted in this type of format and appears to be drafted in a more narrative form. For example, claim 31 states, '(new) A method for acquisition of shapes from images with representations of HEp-2 cell sections as cases and for case-based recognition of HEp-2 cells as objects. in digital images, wherein **on the one hand**, for acquisition of shapes from images with cases and for learning abstract shape models based on these cases for a case database, for each image with cases data are acquired by manual tracing of edges of an image in the form of visible outer and/or inner contours with a handheld input device connected to a computer which data can be correlated with these edges and thus cases; at least two cases are compared with one another, respectively, by means of moving and scaling for each case; the two cases are oriented toward one another and in this connection at the same time the similarity is calculated by determination of similarity parameters; in accordance with the similarity parameters, sets of similar cases are formed and ordered hierarchically as a dendrogram; the dendrogram, by presetting distance values or similarity values, is divided into groups and within the groups a prototype is selected; **on the other hand**, for recognition of an object in a digital image with objects from the case database a case is selected as a case image with a case description, wherein at the same time an image sequence is generated of the case image as a pyramid with image planes; a gradient image of the actual digital image is generated and is transformed into an image sequence as a pyramid with image planes; the case image is successively moved onto each object image of the gradient image beginning with the highest image planes wherein the case image is compared to each object image of the gradient image and in this connection at

the same time the similarity is calculated by determination of similarity parameters, and the degree of similarity between case image and object image is determined by the similarity parameter.'

The Examiner respectfully indicates that It is difficult for the Examiner to determine where one claim element ends and another begins. In addition, the phrases, '**on the one hand**' and '**on the other hand**' makes it difficult determine the metes and bounds of the claims and the examiner respectfully request that the applicants consider amending the claims to more clearly identify the metes and bounds of the claims.. Dependent claims 32-43 suffer from the same deficiencies noted above with respect to claim 31.

NOTE: Because of the difficulty that the examiner has had with ascertaining the metes and bounds of claims 31-43 as noted above, claims 31-43 have not been evaluated based on prior art.

Claim Rejection-35 USC 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 44 and 45 are rejected under 35 USC 101 as being directed toward nonstatutory subject matter.

Specifically, claim 44 recites "[A] computer program product…" but fails to recite a "medium" upon which the "computer program product" resides. Accordingly, claim 44

appears to be drawn to "*software per se*" which does not fit into one of the four statutory categories of invention and is therefore considered nonstatutory.

Claim 45 is considered nonstatutory for a different reason then discussed above. More specifically, claim 45 recites "[A] computer program product with a machine-readable carrier…" It appears that the "carrier" recited in claim 45 encompasses a computer program recorded on a signal which does not fit into one of the four statutory categories of invention and is therefore considered nonstatutory.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 20-23, 25-29 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang (U. S. Patent publication 20030208116; referred to as **Liang**), in view of Perner ('Classification of HEp-2 cells using fluorescent image analysis and data mining'; referred to as **Perner**) and Perner3 ('Mining knowledge in medical images databases'; referred to as **Perner3**).

Claims 20 and 44-46

Liang discloses a method for acquisition of shapes from images with representations of HEp-2 cell sections as objects and for learning abstract shape models from representations of HEp-2 cell sections for a case database for a case-based recognition of HEp-2 cells in digital images, wherein: for each image by manual tracing of edges of an image in the form of visible outer and/or inner contours of HEp-2 cells by means of a hand-held input device connected to a computer data are acquired that can be correlated with these edges and the HEp-2 cells as objects represented thereby; the translation of each object is eliminated such that each object is moved into the origin of a coordinate system; each object in accordance with the correlated data is scaled within the coordinate system. (**Liang,** ¶0039, ¶0081; 'Manual tracing of edges of an image' of applicant maps to 'it may be desirable for the user to manually delineate the outline of the structure by manually tracing the contour on one or more of the image slices' of Liang. 'Hand held device' of applicant is inherent to a user manually delineate the outline. 'Origin of a coordinate system' of applicant maps to 'navigational position' of Liang. 'Scaling' and 'rotation' of applicant maps to 'size' and 'rotation' of Liang.)

Liang fails to particularly particularly call for at least two objects are compared with one another, respectively, wherein the objects are oriented toward one another, wherein in this connection scaling and/or rotation is carried out.

Perner teaches at least two objects are compared with one another, respectively, wherein the objects are oriented toward one another, wherein in this connection scaling and/or rotation is carried out. (**Perner,** abstract; Comparing at least two objects of

applicant maps to 'In this paper, we present results on image analysis, feature extraction, and classification' of Perner.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Liang by comparing images as taught by Perner to have at least two objects are compared with one another, respectively, wherein the objects are oriented toward one another, wherein in this connection scaling and/or rotation is carried out.

For the purpose of classifying images within a database with known images

Liang and Perner fails to particularly disclose at the same time, the similarity is calculated; during calculation of the similarity the similarity parameters are determined either as distance values or similarity values between the objects, respectively, until either a minimum of the distance values or a maximum of the similarity values is present; based on the determined distance values or similarity values sets of similar objects are formed and hierarchically ordered as a dendrogram; and the dendrogram by presetting distance values or similarity values is divided into groups and within the groups one prototype is selected.

Perner3 discloses at the same time, the similarity is calculated; during calculation of the similarity the similarity parameters are determined either as distance values or similarity values between the objects, respectively, until either a minimum of the distance values or a maximum of the similarity values is present (**Perner3,** figure 5; Calculating the similarity parameters of applicant maps to figure 5 of Perner3 and the Dendrogram similarity between the features of Perner3.); based on the determined distance values or similarity values sets of similar objects are formed and hierarchically

ordered as a dendrogram; and the dendrogram by presetting distance values or similarity values is divided into groups and within the groups one prototype is selected. (**Perner3,** figure 5; ';Hierarchically ordered as a dendrogram' of applicant maps to the Dendrogram in figure 5 of Perner3. 'Distance values' of applicant maps to the horizontal scale across the top of figure 5 of Perner3.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Liang and Perner by using a dendrogram and the calculations needed to make one as taught by Perner3 to have at the same time, the similarity is calculated; during calculation of the similarity the similarity parameters are determined either as distance values or similarity values between the objects, respectively, until either a minimum of the distance values or a maximum of the similarity values is present; based on the determined distance values or similarity values sets of similar objects are formed and hierarchically ordered as a dendrogram; and the dendrogram by presetting distance values or similarity values is divided into groups and within the groups one prototype is selected.

For the purpose of finding features which are closely correlated and then match with other features with a lower correlation. Using a threshold, a cluster of features can be found.

Liang fails to particularly particularly call for respectively, wherein the prototype either is an averaged shape averaged based on individual shapes of the group or the median of the group of the individual shapes.

Perner teaches respectively, wherein the prototype either is an averaged shape averaged based on individual shapes of the group or the median of the group of the individual shapes. (**Perner,** table 2; 'Average shape based on individual shapes' of applicant maps to 'mean area of objects in class image t' of Perner.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Liang by using averages as taught by Perner to have respectively, wherein the prototype either is an averaged shape averaged based on individual shapes of the group or the median of the group of the individual shapes.

For the purpose of reducing outliers effects within a dataset.

Claim 21

Liang and Perner fail to particularly disclose wherein the distance values or the similarity values define a distance matrix or a similarity matrix.

Perner3 discloses wherein the distance values or the similarity values define a distance matrix or a similarity matrix. (**Perner3,** figure 5; 'Distance values' of applicant maps to the horizontal scale across the top of figure 5 of Perner3. Since Perner3 deals with at least two dimensional structures, there are at least 2 sets of values for computational requirements. Thus it is inherent that some form of computation be employed. Either an n by m matrix or a summation of iterations of a given function is to be used.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Liang and Perner by

using physical distance as a measure as taught by Perner3 to have wherein the distance values or the similarity values define a distance matrix or a similarity matrix.

For the purpose of mapping physical features of the images.

Claim 22

Liang and Perner fail to particularly disclose wherein the distance values or the similarity values are hierarchically represented by means of the single linkage method and a dendrogram.

Perner3 discloses wherein the distance values or the similarity values are hierarchically represented by means of the single linkage method and a dendrogram. (**Perner3,** figure 5; 'Single linkage method and dendrogram' of applicant maps to figure 5 similarity between features of Perner.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Liang and Perner by using differences of physical distances as taught by Perner3 to have wherein the distance values or the similarity values are hierarchically represented by means of the single linkage method and a dendrogram.

For the purpose of aiding in the classification of the image(s).

Claim 23

Liang and Perner fails to particularly disclose wherein the dendrogram is intersected once on the similarity scale in accordance with either at least one fixed, and thus automatic, or at least one user-specific threshold so that groups result, that the

individual forms are correlated with the groups, that in the groups one prototype is selected, respectively, wherein the prototype is either an averaged shape that is averaged based on the individual shapes of the group or the median of the group of the individual shapes, that the averaged shape or the median of group is represented on a or the data viewing device, and that the contour points of the averaged shape or the median is saved as a data set in the computer.

Perner3 discloses wherein the dendrogram is intersected once on the similarity scale in accordance with either at least one fixed, and thus automatic, or at least one user-specific threshold so that groups result, that the individual forms are correlated with the groups, that in the groups one prototype is selected, respectively, wherein the prototype is either an averaged shape that is averaged based on the individual shapes of the group or the median of the group of the individual shapes, that the averaged shape or the median of group is represented on a or the data viewing device, and that the contour points of the averaged shape or the median is saved as a data set in the computer. (**Perner3,** figure 5; All the characteristics described within this claim which makes up figure 3 of the application maps to figure 5 of Perner3. 'Data viewing device' of applicant is inherent to Perner3 since Perner3 is used in conjunction with images which can only be seen using a data viewing device.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Liang and Perner by using centigrams with only one intersection as taught by Perner3 to have wherein the dendrogram is intersected once on the similarity scale in accordance with either at least one fixed, and thus automatic, or at

least one user-specific threshold so that groups result, that the individual forms are correlated with the groups, that in the groups one prototype is selected, respectively, wherein the prototype is either an averaged shape that is averaged based on the individual shapes of the group or the median of the group of the individual shapes, that the averaged shape or the median of group is represented on a or the data viewing device, and that the contour points of the averaged shape or the median is saved as a data set in the computer.

For the purpose of keeping computations costs reduced.

Claim 25

Liang discloses wherein the data of the objects are standardized such that the center point of the object corresponds to the coordinate origin 0,0. (**Liang,** claim 9; 'objects are standardized such that the center point of the object corresponds to the coordinate origin 0,0' of applicant maps to 'defining a coordinate system with the bifurcation point as the origin' of Liang.)

Claim 26

Liang and Perner fails to particularly disclose wherein a gradient image is formed based on the case image as well as the object image, respectively, that these gradient images each are transformed into an image sequence as a pyramid with image planes and that successively the directional vectors in the image planes of the case image and the object image are compared with one another by forming the product.

Perner3 discloses wherein a gradient image is formed based on the case image as well as the object image, respectively, that these gradient images each are transformed into an image sequence as a pyramid with image planes and that successively the directional vectors in the image planes of the case image and the object image are compared with one another by forming the product. (**Perner3,** p363, '4 Results'; The term 'gradient image' is a resulting comparison between the input and known images. Since these images are analyzed on a number of different factors, each factor can be seen as a decision point within a decision tree with corresponding 'directional vectors.' All these decision points combined together can be viewed as a decision tree or 'an image sequence as a pyramid' of applicant. Gradient images; image sequences as a pyramid; successively the directional vectors; and object image are compared with another of applicant maps to 'Our expert likes the unprimed tree much more since nearly all attributes he is using for decision making appear in the tree' of Perner3.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Liang and Perner by generating a model which is composed of a difference of features as taught by Perner3 to have wherein a gradient image is formed based on the case image as well as the object image, respectively, that these gradient images each are transformed into an image sequence as a pyramid with image planes and that successively the directional vectors in the image planes of the case image and the object image are compared with one another by forming the product.

For the purpose of using such a result to aid in classification the inputted image.

Claim 27

Liang fails to particularly particularly call for wherein the case image is a prototype of the individual shapes of a group of either averaged shape or the median of the group of individual cases.

Perner teaches wherein the case image is a prototype of the individual shapes of a group of either averaged shape or the median of the group of individual cases. (**Perner,** p221; 'Individual shapes of a group of either averaged shape or the median of the group of individual cases' of applicant maps to 'However, not a single feature of each object is taken for classification, but a mean value for each feature is calculated over all the objects in the class image' of Perner.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Liang by averaging information as taught by Perner to have wherein the case image is a prototype of the individual shapes of a group of either averaged shape or the median of the group of individual cases.

For the purpose of reducing outliers effects within a dataset.

Liang and Perner fails to particularly disclose wherein groups are sets of similar individual cases ordered as a dendrogram with determined distance values or similarity values and the most similar case determines the branch of the dendrogram or that the case image is an individual image of a case.

Perner3 discloses wherein groups are sets of similar individual cases ordered as a dendrogram with determined distance values or similarity values and the most similar

case determines the branch of the dendrogram or that the case image is an individual image of a case. (**Perner3,** Figure 5; 'Groups are sets of similar individual cases ordered as a dendrogram with determined distance values or similarity values and the most similar case determines the branch of the dendrogram or that the case image is an individual image of a case' of applicant maps to figure 5 of Perner3. 'Charlung' and 'Withlupl' are 'ordered' due to similarity. Next to these is 'Thlungpl' and not 'Spic', because the similarity between 'Thlungpl' is closer to 'Charlung' and 'Withupl' than 'Spic' of Perner3.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Liang and Perner by putting similar cases in a order sequence as taught by Perner3 to have wherein groups are sets of similar individual cases ordered as a dendrogram with determined distance values or similarity values and the most similar case determines the branch of the dendrogram or that the case image is an individual image of a case.

For the purpose of not having overlapping connections but a clean, easy to understand display of the meaning of the data.

Claim 28

Liang and Perner fails to particularly disclose wherein the directional vector between either two points or neighboring points of the edges is calculated for the case image or will be calculated for the object image and that during the calculation of the similarity the similarity parameters are determined as directional vectors as well as

either as distance values or similarity values between the case image and the object image, respectively.

Perner3 discloses wherein the directional vector between either two points or neighboring points of the edges is calculated for the case image or will be calculated for the object image and that during the calculation of the similarity the similarity parameters are determined as directional vectors as well as either as distance values or similarity values between the case image and the object image, respectively. (**Perner3,** figure 2, Figure 5; 'Directional vector' of applicant maps to the links between the nodes of Figure 2 decision tree of Perner3. The points of the edges being calculated is disclosed by similarity between the features in figure 5 of Perner3.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Liang and Perner by the values calculated as indicators of a decision tree format as taught by Perner3 to have wherein the directional vector between either two points or neighboring points of the edges is calculated for the case image or will be calculated for the object image and that during the calculation of the similarity the similarity parameters are determined as directional vectors as well as either as distance values or similarity values between the case image and the object image, respectively.

For the purpose of using the invention as an expert system.

Claim 29

Liang and Perner fails to particularly disclose wherein by means of an index the cases are ordered in the case database in accordance with the similarity relations such that from a set either of prototypes the most similar prototype or of cases the most similar case can be found quickly for the object in the image.

Perner3 discloses wherein by means of an index the cases are ordered in the case database in accordance with the similarity relations such that from a set either of prototypes the most similar prototype or of cases the most similar case can be found quickly for the object in the image. (**Perner3,** figure 5; 'Index the cases are ordered in the case database in accordance with the similarity relations' of applicant maps to a function of a dendrogram. The first two features, 'Charlung' and 'Withlupl' are 'ordered' due to similarity. Next to these is 'Thlungpl' and not 'Spic', because the similarity between 'Thlungpl' is closer to 'Charlung' and 'Withupl' than 'Spic' of Perner3.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Liang and Perner by using an ordering system that reduces computation costs as taught by Perner3 to have wherein by means of an index the cases are ordered in the case database in accordance with the similarity relations such that from a set either of prototypes the most similar prototype or of cases the most similar case can be found quickly for the object in the image.

For the purpose of find clusters within a database.

6. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liang, Perner and Perner3 as applied to claims 20-23, 25-29 and 44-46 above, and further in view of Stark ('Introduction to Numerical Methods'; referred to as **Stark**).

Claim 24

Liang, Perner and Perner3 fails to particularly disclose wherein a reduction of the data acquired by tracing the edges and thus of the points as the visible outer and/or inner contours is realized by interpolation with a polynomial.

Stark discloses wherein a reduction of the data acquired by tracing the edges and thus of the points as the visible outer and/or inner contours is realized by interpolation with a polynomial. (**Stark,** pp273-327; 'Points as the visible outer and/or inner contours is realized by interpolation with a polynomial' of applicant maps to 'Interpolation and curve fitting' of Stark.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the combined teachings of Liang, Perner and Perner3 by using standard interpolation methods as taught by Stark to have wherein a reduction of the data acquired by tracing the edges and thus of the points as the visible outer and/or inner contours is realized by interpolation with a polynomial.

For the purpose of finding a function which connects data points for the purpose of finding distance, area or volume.

Conclusion

7. The prior art of record and not relied upon is considered pertinent to the applicant's disclosure.

-'Image analysis and classification of HEp-2 cells in fluorescent images': Perner, 1998, IEEE 1051-4651, pp1677-1679. This is another paper written by the inventor which appears to be related to the claimed invention.

SUBJECT MATTER ALLOWABLE OVER PRIOR ART

Allowable Subject Matter

8. Claims 30 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

:IMPORTANT NOTE:

If the applicant should choose to rewrite the independent claims to include the limitations recited in claim 30, the applicant is encouraged to amend the **title of the invention** such that it is descriptive of the invention as claimed as required by sec. **606.01** of the **MPEP**. Furthermore, the **Summary of the Invention** and the **Abstract** should be amended to bring them into harmony with the allowed claims as required by paragraph 2 of **sec. 1302.01** of the **MPEP**.

As allowable subject matter has been indicated, applicant's response must either comply with all formal requirements or specifically traverse each requirement not complied with. See **37 C.F.R. § 1.111(b)** and **§ 707.07(a) of the M.P.E.P**.

9. Claims 20-46 have been rejected.

Correspondence Information

10. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner Mr. Peter Coughlan, whose telephone number is (571) 272-5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor Mr. Donald Sparks can be reached at (571) 272-4201. Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

Hand delivered to:

Receptionist,

Customer Service Window,

Randolph Building,

401 Dulany Street,

Alexandria, Virginia 22313,

(located on the first floor of the south side of the Randolph Building);

or faxed to:

(571) 272-3150 (for formal communications intended for entry.)

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. C./
Examiner, Art Unit 2129
5/21/2010

/Donald Sparks/
Supervisory Patent Examiner, Art Unit 2129